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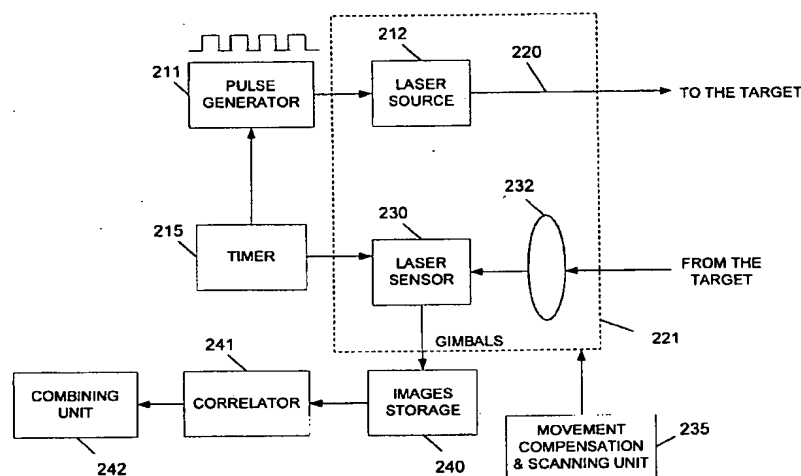
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(54) Title: AIRBORNE LASER IMAGE CAPTURING SYSTEM AND METHOD



(57) Abstract: The present invention relates to an airborne laser image capturing system which comprises: (a) A laser source and laser focal plan array, both being mounted on a same gimbals platform; (b) A pulse generator for providing a series of pulses to said laser source during a scanning period, thereby activating laser illumination by said laser source during each of said pulses, the laser source being characterized in that its illumination beam is so concentrated that each pulse provides illumination of only a portion of the expected target; (c) A scanning unit for receiving a line of sight direction to a target, and for providing to the gimbals a sequential

stepping-scanning movement in such a manner as to scan an area in which the target is included; (d) A motion compensation unit for providing to said gimbals, in addition to said scanning signal a motion compensation signal for compensating for the aircraft motion and for the aircraft vibrations; (e) A timing unit for: (e.i) Activating, in coordination with the said scanning unit, said pulse generator during the scanning period, in order to produce over the target a series of illumination spots, each relating to one of said laser pulses, and wherein each of said spots overlaps at least a portion of one or more adjacent spots; and (e.ii) Activating said laser focal plan array during the illumination of the target by each specific pulse in order to capture many of distinct spot-images, each relating to one illumination pulse; (f) A memory unit for receiving from said focal plan array the captured spot-images, and for storing them; (g) A correlating unit for correlating images stored in said memory by finding similarity between features of overlapping portions of neighboring spot-images; and (h) A combining unit receiving information from said correlating unit for combining the spot-images to form a complete image of the scanned area.

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